From: Jeffrey R Marcell (Generation - 3) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JEFF136]
Sent: 6/10/2015 9:34:16 AM
To: Keith M. Homza (Generation - 3) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Keith20]; Barbara Monteiro (Generation - 3) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Barba19]; Dana West (Generation - 3) [/O=DOMINION/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=DANA0608a5]
Subject: FW: Possum Point - Dewatering Waters to PWCSA

Possibly solution for water during the Ash Pond project.

PWCSA will issue a permit if we choose this option.

GAI will cover all sampling and other requirements, we'll just need to spot check for compliance.

Again, this is one possible option. Others are being formulated and discussed. This was the first to take legs.

Jeff Marcell

Environmental Supervisor

Possum Point Power Station

Ladysmith & Remington CT Sites

703-441-3813 (phone)

8-795-3813 (tie)

703-441-3897 (fax)

From: Amelia H Boschen (Services - 6)
Sent: Wednesday, June 10, 2015 7:52 AM
To: Scott Quinlan
Cc: Kenneth Roller (Services - 6); Doug Wight (Generation - 34); Oula K Shehab-Dandan (Services - 6); Michael A

Glagola (Generation - 34); Jeffrey R Marcell (Generation - 3); John Klamut; John DeBarbieri
Subject: RE: Possum Point - Dewatering Waters to PWCSA

Perfect. We'll see if we make any progress with DEQ on the surface water in pond D before we talk to PCWSA, but I'm glad to have this number in mind as the ceiling for flows we might want to send to PWC.

Thanks,

From: Scott Quinlan [mailto:s.quinlan@gaiconsultants.com]
Sent: Wednesday, June 10, 2015 7:50 AM
To: Amelia H Boschen (Services - 6)
Cc: Kenneth Roller (Services - 6); Doug Wight (Generation - 34); Oula K Shehab-Dandan (Services - 6); Michael A Glagola (Generation - 34); Jeffrey R Marcell (Generation - 3); John Klamut; John DeBarbieri
Subject: RE: Possum Point - Dewatering Waters to PWCSA

I still believe the surface water in Pond D should be covered under the current permit. However, if we sent all water to the sewer we would want as much capacity as possible. Based on our limited review, that would be 1,500 gpm.

Scott

From: Amelia H Boschen (Services - 6) [mailto:amelia.h.boschen@dom.com]
Sent: Wednesday, June 10, 2015 7:23 AM
To: Scott Quinlan
Cc: Kenneth Roller (Services - 6); Doug Wight (Generation - 34); Oula K Shehab-Dandan (Services - 6); Michael A Glagola (Generation - 34); Jeffrey R Marcell (Generation - 3); John Klamut; John DeBarbieri
Subject: RE: Possum Point - Dewatering Waters to PWCSA

So is 500 gpm still the top of the flow rate we would want to discuss with the county? what would the be the top discharge rate we would want to request if we were going to send all of our wastewater there that is not currently covered under the VPDES permit?

From: Scott Quinlan [mailto:s.quinlan@gaiconsultants.com]
Sent: Tuesday, June 09, 2015 5:47 PM
To: Amelia H Boschen (Services - 6)
Cc: Kenneth Roller (Services - 6); Doug Wight (Generation - 34); Oula K Shehab-Dandan (Services - 6); Michael A Glagola (Generation - 34); Jeffrey R Marcell (Generation - 3); John Klamut; John DeBarbieri
Subject: RE: Possum Point - Dewatering Waters to PWCSA

Amelia:

See my comments below in "green." Let me know if you have any further questions. Thanks.

Sincerely,

Scott C. Quinlan, PE
Director – Energy Water Resources Engineering and Planning

GAI Consultants, Inc.

500 Cranberry Woods Drive, Cranberry Township, PA 16066

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From: Amelia H Boschen (Services - 6) [mailto:amelia.h.boschen@dom.com]
Sent: Tuesday, June 09, 2015 4:18 PM
To: Scott Quinlan

Cc: Kenneth Roller (Services - 6); Doug Wight (Generation - 34); Oula K Shehab-Dandan (Services - 6); Michael A Glagola (Generation - 34); Jeffrey R Marcell (Generation - 3); John Klamut; John DeBarbieri
Subject: RE: Possum Point - Dewatering Waters to PWCSA

Scott,

Thanks for this information.

Just to clarify:

In the meeting, I think I heard that we would mostly only want to consider sending dewatering flows to the county, because the cost associated with sending other wastewaters (ex. D-Pond surface waters) would not be worth it at the limited flow capacity. Is that right? That is correct. However, there may be a possibility of discharging all water to the sewer. We would have to pay to upsize the pipeline to the sewer (temporary or permanent) and potentially pretreatment of the flow prior to discharge to the sewer. If we sent the entire volume of Pond D surface water (~32,000,000 gallons), the cost would range between $160,000 to $320,000 depending on rates. This estimate is based on average residential rates. In other words, are we sure we want to approach the county with the 200-500 gpm rate or is there any reason we would want to conservatively approach them with a higher flow rate? Yes, I think it would be worthwhile to approach them about the higher flow rate.

Also, do we have an estimate for the duration of the flow? I would start with a duration of 3 to 6 years. Would it basically be the entire project period with flows anticipated to drop of when initial dewatering is completed? Yes, but there may be some low volume flows that extend beyond the project closing. It depends on the dewatering characteristics of the ash.

Thanks,

Amelia

From: Scott Quinlan [mailto:s.quinlan@gaiconsultants.com]
Sent: Tuesday, June 09, 2015 3:55 PM
To: Amelia H Boschen (Services - 6)
Cc: Kenneth Roller (Services - 6); Doug Wight (Generation - 34); Oula K Shehab-Dandan (Services - 6); Michael A Glagola (Generation - 34); Jeffrey R Marcell (Generation - 3); John Klamut; John DeBarbieri
Subject: Possum Point - Dewatering Waters to PWCSA

Amelia:

Pursuant to our discussions, we have developed conceptual considerations for discharging dewatering waters to the Prince William County Service Authority collection system. Based on our review, this alternative is feasible to pursue further.

Gravity Sewer Capacity

The 18-inch gravity sewer main on Possum Point Road is presumed to have a full flow capacity of approximately 2,100-gpm. This is based on the following information:

- 128 lf of 18-inch Ø RCP at 0.20% (Refer to attached Dominion drawing no. 9158A-BC-018).
- Manning's n of 0.013.

Gravity Sewer Peak Hourly Flows

The existing sanitary waste from Possum Point Power Station that contributes to the gravity main is estimated at 100 to 130-gpm (Refer to attached duty points for sewage pump station, Dominion drawing no. 9158A-BC-018).

There are an estimated forty (40) residential properties that are presumed to discharge to the same manhole upstream of the 18" gravity sewer discussed above. Assuming 3-persons/property the population is approximately 120-persons that contributes wastewater. The peak hourly flow/average flow factor is therefore estimated at 4.0 (Refer to attached from Ten States Standards). Assuming 100-gpd/person, the peak hourly flow from residential customers (including estimated infiltration) is estimated to be 120 x 100 x 4.0 = 48,000-gpd = 33-gpm.

Therefore, the estimated excess capacity of the 18-inch gravity sewer main on Possum Point Road is 2,100-gpm – 33-gpm – 130-gpm = 1,937-gpm.

This excess capacity for the 18-inch gravity sewer main should handle the additional dewatering water flows estimated at 200 to 500-gpm.

Additional Items as We Move Forward

- It is anticipated that Prince William County Service Authority would require pre-treatment of heavy metals that may potentially interfere with bio-sludge processes. Pretreatment would be required prior to discharging to their collection system. General pretreatment regulations are outlined in 40 CFR 403.8.

- A downstream capacity analysis may be necessary to justify the added 200 to 500-gpm dewatering flows to their system depending on Prince William County Service Authority requirements. In other words even though the 18-inch gravity pipe appears to have sufficient capacity, downstream pipes may or may not.

- The Station's existing submersible pump and 4-inch forcemain that presently directs the Station's sewage to the 18-inch gravity sewer main on Possum Point Road would need to be evaluated further to identify suitability for accepting the added ash dewatering flows. The 4-inch forcemain likely has capacity to convey only up to 195 to 235-gpm at higher end velocities of 5 to 6-fps. Possible other options include installing a separate, temporary pump and forcemain system for ash dewatering flows (discussed in the following bullet point) or temporarily replacing the Station's existing sewage pump with a larger pump and utilizing a smaller ash dewatering flow rate.

- A proposed 1.2-mile, 8-inch hdpe forcemain may be anticipated to convey Pond D water to the upstream manhole (for the 18-inch gravity sewer main) on Possum Point Road. It is presumed that the forcemain would be at grade, however, consideration would need to be made for burying the forcemain under existing driveways and restoring the driveways after completion of the project. Residential customers along Possum Point Road may not be favorable to this. Permission of course must also be agreed in writing by the Town of Dumfries who is responsible for the Right-of-Way along Possum Point Road.

Let me know if you have any questions. Thanks.

Sincerely,

Scott C. Quinlan, PE
Director – Energy Water Resources Engineering and Planning

GAI Consultants, Inc.

500 Cranberry Woods Drive, Cranberry Township, PA 16066

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